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SOIL CONSERVATION SERVICE

1972 ANNUAL REPORT
OF

PLANT MATERIALS CENTER

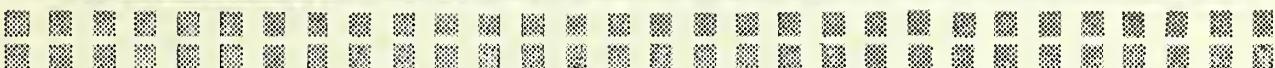
COFFEEVILLE, MISSISSIPPI

PART 2



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COFFEEVILLE PLANT MATERIALS CENTER

ANNUAL TECHNICAL REPORT

1972

PART II

This report describes the technical activities of the Coffeeville Plant Materials Center for the calendar year 1972.

The Center is located seven miles west of Coffeeville, Mississippi on Tillatoba Road. It is comprised of approximately 195 acres of land leased from the U. S. Forest Service. Soil conditions vary widely from nearly level, moderately well drained bottomland to severely eroded sloping land. Portions of the area cannot be utilized because of the terrain. These varying conditions provide several different sites on which to test plants. The principal soils are:

Gillsburg silt loam, IIw3.

Somewhat poorly drained, acid, bottomland, on a 0-2 percent slope.

Grenada silt loam, 0-5 percent slope, IIwl, and IIa2.

Both soils are medium acid to very strongly acid, are high in silt content, and have fragipans at about 30".

Loring silt loam, 2 to 12 percent slopes, eroded to severely eroded, IIel, IIIel, IVel, and VIel.

These soils are moderately well drained, high in silt content, strongly to very strongly acid, and have a fragipan beginning at about 27".

Providence silt loam, 2 to 12 percent slopes, eroded to severely eroded, IIe2, IIIe2, and VIe2.

These soils are moderately well drained, strongly to very strongly acid, have a sandy loam to clay loam texture, and a fragipan as shallow as 18".

Weather Summary

Weather conditions during 1972 were typical of those for this location and no real extremes occurred. Both summer and winter temperatures averaged near normal with no severe or prolonged hot or cold periods. A total of 58.47 inches of rain fell. February was the driest month with only .81 inches and November was wettest with 8.16 inches. A monthly rainfall chart is shown below:

January	7.16 inches	May	6.46 inches	September	6.35 inches
February	.81 "	June	3.24 "	October	3.04 "
March	7.15 "	July	5.15 "	November	8.16 "
April	2.89 "	August	1.94 inches	December	6.12 "

Total rainfall for the year---58.47 inches.

Rain fell with such regularity during November and December that it prevented harvest of some seed and delayed the planting of the seed of woody stock.

I. Assembly of Plant Materials

One hundred forty-one accessions of plants were received by the Center in 1972. This is an unusually small number of plants to receive in one year. Many requests for plants went unfilled in 1972, but should be filled in succeeding years.

All plants received have been, or will be, established in appropriate areas. They will then be observed and tested for potential to solve various conservation problems as follows:

A. Streambank or Reservoir Levee Erosion Control.

This is one of the major problems in the area served by the Center. During 1972, accessions of Myrica, Ampelopsis, Paulownia, Scirpus, Phalaris, Zizianopsis, Populus, and Acrocerus were received for testing on these problems.

B. Erosion Control on Roadbanks and Similar Sites

These areas are a major problem, being very unsightly and depositing large amounts of silt into streams. Accessions of the genera Agrostis, Panicum, Themeda, Bothriochloa, Coronilla, and Eragrostis were received for observation and testing.

C. Cool Season Forage Production and/or Erosion Control.

The following genera of plants were received: Festuca, Bromus, and Vicia. They will be evaluated for potential in erosion control and cool season forage production.

D. Wildlife Food Plants

Many types of plants are needed to meet the year-round food needs of wildlife in the area served by the Center. Plants assembled in 1972 to be evaluated for that purpose include Vicia, Zizania, Sorghum, Castanea, Prunus, Nyssa, Quercus, Caperonia, Ulmus, and Echinochloa.

E. Miscellaneous

Various other accessions were received. Each will be evaluated for potential to solve problems for which each plants appears to have possibility.

II. Preparation of Three Technical Manuscripts Reporting Previous Plant Performance Tests

In past years, the Center has made some plant performance tests which have not been well documented in the corresponding Annual Reports. These tests contain information of possible value to plant scientists within or outside the Soil Conservation Service. In order that this information might be made available, three such tests were written up in 1972.

These manuscripts were written as summarizations of the tests. Each should be suitable for publication as a technical note or an article in some journal. None were printed in either of these forms in 1972. The summarizations written up are listed by title with a brief description of each.

1. A determination of the Best Month to Plant Maidencane

This write-up describes a test, and the results, of monthly plantings of a maidencane (Panicum hemitomom) accession from Halifax County, North Carolina. Rhizomes were planted both immediately after digging and after being held for up to 48 hours to simulate shipment conditions. Immediate survival and width of spread one year after planting were compared for each monthly planting.

2. Seed Treatment Test to Induce Germination in Eastern Redcedar

This write-up describes a brief attempt to break seed dormancy in Eastern Redcedar, Juniperus virginiana. Seed treatment materials were concentrated sulfuric acid, hydrogen peroxide, and gibberellic acid. Treatments involved all these materials individually and in all possible combinations. Germination results were compared.

3. An Underwater Deterioration Study of Seed Suitable for Waterfowl Food

In this test, ten accessions were subjected to underwater storage for up to ninety days during the winter. The test ran for three consecutive years, with deterioration checks being made at the end of 30, 60, and 90 days. Results were compared for the ten different accessions studied.

III. Completion and Update of Project Plans for Current Activities

Often evaluation projects for plants carry over from one year to the next. As information is obtained, certain aspects of the plan for evaluation may need modification to reasonably carry out the Project to completion. Such was the case at the Coffeyville Center.

A meeting involving the Regional Plant Materials Specialist, the Washington Field PMS, and the Center Manager was devoted to this problem. At that time, certain project plans were studied and completion and revision needs were decided upon. The Center Manager made these changes as needed.

Supplemental Evaluations

Supplemental evaluations are set up to test plants which were selected as being superior in initial observation. Here these selected plants are studied to gain certain needed information about them before they are increased for field testing. During 1972, the following supplemental evaluations were being conducted:

A. A test to Determine Seed Production in Selected Accessions of Paspalum distichum and P. vaginatum

Abstract: An attempt was made to increase seed production in seven accessions of Paspalum distichum, knotgrass and three accessions of P. vaginatum, seashore paspalum. Each accession was planted vegetatively in a 5' X 20' plot. Differing fertilization rates coupled with intermittent clipping were used as an attempt to produce a mechanically harvestable seed crop.

In all instances, weedy grasses invaded the plots to such an extent that no seed production comparisons were possible. More effective weed control would be necessary in order to get meaningful results.

Stream channel erosion is a serious problem in much of the area served by the Coffeeville Plant Materials Center. Plants capable of reducing this erosion and which can be established from seed are urgently needed.

Paspalum distichum, knotgrass, and P. vaginatum, seashore paspalum, have some qualities which make them capable of reducing such erosion on some streams. Both occur naturally in the Southeast United States, according to Hitchcock. Seashore paspalum is said to be salt tolerant, while knotgrass is primarily restricted to wet, freshwater areas. Both plants spread by means of extensively creeping stolons, and some seed are produced.

No accessions of either species proved to be a good seed producer during initial observation at the Center. The following test was an attempt to increase seed production and to determine which of the ten accessions tested was the best seed producer.

Materials and Methods:

A field of Oaklimeter silt loam was selected as the planting site. A seedbed was prepared and approximately 2000 square feet of a level area was enclosed by a dike one foot high.

Establishment:

The following ten accessions were planted vegetatively as a single row in 5' X 20' plots (3' between plots) on May 20, 1970:

Paspalum distichum-MS Numbers-3152, 3153, 3154, 3155, 3175, 3178, 3182

Paspalum vaginatum-MS Numbers-3247, 3248, 3249

First Year Management:

Four hundred pounds of 13-13-13 per acre was applied at planting time. Water was trickled onto the area to keep the soil soggy wet, except that it was stopped monthly. The soil was allowed to dry enough to mow each plot. Water application was then continued.

Any clippings mentioned above containing any reasonable numbers of seedheads were retained, dried and threshed in order that seed production could be calculated.

Second Year Management:

Each plot was divided in two subplots of 5' X 10'. One subplot received 68 pounds of nitrogen per acre in a single application May 12, 1971. The other subplot received no fertilizer. Water was trickled into the area to keep the soil soggy wet, except that the plots were allowed to dry periodically for clipping.

Plots were clipped at approximately 3 weeks intervals until June 1. They were then allowed to grow until a seedcrop was set and matured. At this time, they were clipped, and all clippings, were retained for drying, threshing, and seed production calculations.

Third Year Management:

Diuron herbicide at the rate of approximately 1.6 pounds per acre was applied March 29, 1972 in an attempt to control annual weedy grasses. Other management was the same as the second year.

Results and Discussion:

During the first year, all ten accessions planted spread to adequately cover the plots. No clippings were retained for threshing, as no reasonable amounts of seed heads were produced. Invasion of weedy grasses onto all plots was a problem.

In the second year, weedy grass competition was very severe. Seedheads were produced on all subplots. Clippings were retained from all subplots clipped during mid-July and late August. These clippings failed to yield any meaningful quantities of seed. There was such an abundance of vegetative material from the weedy grasses that a majority of seed was lost.

The application of Diuron in 1972 did not control the problem of weedy grasses. It gave fair control until mid-May but then the grass problem became acute. Clippings from all subplots taken during early August were retained. Upon threshing these clippings, no meaningful seed production could be ascertained.

This test was discontinued after 1972. It failed to provide any method for producing reasonable quantities of seed on any of the ten accessions tested. Some better control method is needed for the weedy grasses. The indeterminate seed maturity of the grasses tested further complicates the problem of seed harvest.

Reference:

Hitchcock, A. S. 1950. Manual of Grasses of the United States. U. S. Government Printing Office. Washington, D. C. pp. 603-604.

B. Evaluation of Myrica spp. as Stream Channel Erosion Control Plants

The genus Myrica contains wax myrtles and bayberries, both of which have potential for stream channel erosion control.

Certain types spread vegetatively to form dense colonies. Many are adapted to wet situations such as often occur in stream channels. Most are small to moderate size shrubs, and therefore would not greatly impede the flow of water.

The Coffeeville Plant Materials Center proposed to evaluate plants of this genus for characteristics suitable for stream channel erosion control. Seed of thirty accessions were assembled during the fall of 1971 and the winter of 1972. These seed were collected from Louisiana to Massachusetts.

On April 10, 1972, a fifty foot row of each of the following accessions was planted from seed:

Myrica carolinensis-MS 3688
M. cerifera-MS 3685, 3686, 3699, 3700, 3706, 3711, 3714,
3718, 3720, 3722, 3723
M. gale-MS 3773, 3774
M. pennsylvanica-MS 3702, 3703, 3704, 3705, 3707, 3708,
3709, 3710, 3713, 3715, 3716, 3717,
3719, 3721,
M. pumila-MS 3701
Myrica sp.-MS 3689

Ten seedlings from each of the thirty accessions were to be transplanted to a suitable growing site in the fall of 1972. These were to be observed, and superior types selected.

No germination occurred in any of the accessions; possibly the late planting date affected germination. All rows were retained and germination will be checked in the spring of 1973.

C. Planting Date and Depth Requirements for Germination and Establishment of Five Species of Plants

Two year test results of this test were written up in final form in the 1971 Annual Technical Report of this Center. There was a three month gap in this data, however. Also, some results were inconclusive. For this reason, it was decided that 12 additional months of testing was needed.

Briefly stated, the testing was to be carried out as follows: Twelve monthly plantings would be made at depths of 0", $\frac{1}{4}$ ", $\frac{1}{2}$ ", 1", and $1\frac{1}{2}$ " for the following plants:

<u>Echinochloa holubii</u>	MS-924
<u>Lespedeza virgata</u>	MS-126
<u>Panicum virgatum</u>	MS-155
<u>Paspalum nicorae</u>	MS-906
<u>Paspalum notatum</u>	MS-131

Each planting would require 100 seed of each plant for each of the five depths (total of 500 monthly for each plant). Each 100 seed was planted in a 3' length of row, with a 40" row spacing. Germination results would be recorded shortly after germination was accomplished. One year after germination, a visual estimate of percent ground covered would be made.

These monthly plantings were started in October 1972.

IV. Initial Increase for Special Purposes and Carter Use

Andropogon scoparius- Little bluestem, MS Numbers 332, 333, 748, and 1772. These four accessions are similar in regard to growth characteristics, maturity date, etc. Seed of the four were mixed together and planted in April, 1972. Some germination occurred, but crabgrass competition made it impractical to retain this planting.

Myrica spp.- Thirty accessions were available for planting. A fifty foot row was planted from seed in April 1972. No germination occurred for any of these accessions, but all rows were left undisturbed for possible germination in 1973.

Panicum virgatum, Switchgrass, MS numbers 17 and 18- These two switchgrasses withstood closer clipping than any other accessions in clipping trials and still made good regrowth. They were the two latest maturing species. Total volume of forage production compared favorably with all other accessions.

Approximately 500 feet of row of each accession was planted from seed in April 1972. Germination was poor, and the plantings were destroyed.

Species	MS No.	PI or Other No,	Amount Planned Seed (lbs.)	Area in Production	Amount Harvested Seed (lbs.)	Purpose of * Increase
<u>Echinochloa frumentacea</u> <u>Chilwapa millet</u>	181	BN 8963	500 lbs	1 acre	00	C.2
<u>Fragrostis curvula</u> <u>Weeping lovegrass</u>			800 lbs	15 acres	520 lbs	A.2 & A.4
<u>Festuca arundinacea</u> <u>Artrrens fescue</u>	539		100 lbs	3/4 acres	130 lbs	E.1
<u>Festuca arundinacea</u> <u>KY 31 fescue</u>	1601		10,000 lbs	40 acres	15,800 lbs	A.4
<u>Glycine ussuriensis</u> <u>Wild reseeding soybean</u>	128		500 lbs	3 acres	840 lbs	CL & C.4
<u>Lespedeza cuneata</u> <u>Sericea Lespedeza</u>			8000 lbs	75 acres	8300 lbs	A.4
<u>Lespedeza virginata</u> <u>Spreading Lespedeza</u>	126		500 lbs	2 acres	00	A.4
<u>Panicum virgatum</u> <u>Pangburn switchgrass</u>	155		200 lbs	2 acres	73 lbs	E.4
<u>Paspalum notatum</u> <u>Wilmington bahiagrass</u>	131		2000 lbs	30 acres	2550 lbs	E.7
<u>Paspalum notatum</u> <u>Wilmington bahiagrass</u>	F.		50 lbs	1/2 acre	75 lbs	E.7
<u>Trifolium nigrescens</u> <u>Ball Clover</u>			1000 lbs	5 acres	850 lbs	A.3 & E.6
<u>Trifolium vesiculosum</u> <u>Mechee Arrowleaf clover</u>			800 lbs	9 acres	280 lbs	E.6
<u>Trifolium vesiculosum</u> <u>Mechee Arrowleaf clover</u>	F		1000 lbs	6 acres	3600 lbs	E.6

PLANTS FOR FIELD PLANTINGS AND FLOOD PREVENTION USE

Species	MS No.	PI or Other No.	Amount Planned Plants (ea.)	Area in Production	Amount Harvested Plants (ea.)	Purpose of * Increase
<u>Ampelopsis arborea</u>	3691		---	50' row	5 plants	A.1
<u>Ampelopsis brevipendunculate</u>	2665		2000 plants	900 ' row	8600 plants	
<u>Bumelia lanuginosa</u>	3289		---	50' row	---	B.5
<u>Bumelia lycoioides</u>	3692		---	21' row	---	B.5
<u>Campsis radicans</u>	3800		---	—	230 plants	A.1
<u>Callicarpa americana</u>	3768		---	300' row	---	C.1, C.3, C.4
<u>Castanea alnifolia</u>	4		800 plants	1050 ' row	2200 plants	C.6
<u>Castanea mollissima</u>	Mixed		5000 plants	—	8 plants	C.6
<u>Castanopsis schlerophylla</u>	3171		---	—	30 plants	C.6
<u>Castanea sp.</u>	3690		---	20' row	---	C.6
<u>Cleyera japonica</u>	3693		---	50' row	---	B.1 & B.5
<u>Cynodon dactylon</u>	Turfcole		300 sq.Yds.	—	288 sq.Yds.	B.3
<u>Elaeagnus umbellata</u>	430		600 plants	150' row	—	C.7
<u>Elaeagnus umbellata</u>	432		2500 plants	150' row	17 plants	C.7
<u>Elaeagnus umbellata</u>	1723		—	600' row	6 plants	C.7
<u>Euonymus bungeanus</u>	2945		100 plants	60' row	—	C.1 & C.7
<u>Hemerocallis fulva</u>	2165		—	—	10062 plants	B.5

Species	MS No.	PI or Other No.	Amount Planned Plants (ea.)-	Area in Production	Amount Harvested Plants (ea.)	Purpose of Increase
<u>Ilex decidua</u>	3608	-	---	50' row	---	B.5 & C.3
<u>Ilex vomitoria</u>	2757	-	---	15' row	---	B.5 & C.3
<u>Lonicera maackii</u>	2161	-	3000 Plants	600' row	1075 plants	B.1 & C.7
<u>Malus buccata himalaica</u>	3221	-	---	36' row	---	B.2 & C.7
<u>Malus hupehensis</u>	150	-	4700 plants	900' row	2575 plants	B.2 & C.7
<u>Malus sargentii</u>	3504	-	---	5' row	---	B.2 & C.7
<u>Malus sikkimensis</u>	3503	-	---	12' row	---	B.2 & C.7
<u>Panicum hemitomon</u>	2138	-	---	3/4 acre	13,100 plants	A.1 & D.1
<u>Parthenocissus quinquefolia</u>	3694	-	---	300' row	5 plants	A.1
<u>Paspalum distichum</u>	-	-	1000 sq ft.	---	-	A.1 & D.1
<u>Knotgrass</u>	Mixed	-	-	-	-	-
<u>Phyllostachys bissetii</u>	499	-	As requested	300' row	860 plants	B.2
<u>Phyllostachys meyeri</u>	498	-	as requested	300' row	800 plants	B.2
<u>Meyer's bamboo</u>	-	-	as requested	300' row	---	B.2
<u>Phyllostachys sp.</u>	500	-	---	50' row	---	D.2
<u>(Hardy bamboo)</u>	-	-	---	60' row	---	D.2
<u>Pinus sp.</u>	3518	-	---	10 Plants	12' row	C.7
<u>Pinus sp.</u>	3519	-	---	10 Plants	18' row	C.7
<u>Pyrus sp.</u>	3281	-	---	1600 plants	75' row	C.3 & C.6
<u>Quercus accutissima</u>	3	-	-	-	-	-

Species	MS No.	Pl. or Other No.	Amount Planned Plants (ea.)	Area in Production	Amount Harvested Plants (ea.)	Purpose of * Increase
<u>Quercus myrsinaefolia</u>	6		100 plants	—	18 plants	B.5 & C.6
<u>Quercus pumila</u>	2240		---	20' row	—	C.3 & C.6
<u>Rhamnus caroliniana</u>	3290		---	50' row	—	B.5 & C.7
<u>Rhamnus dahuricus</u>	3576		---	36' row	—	B.5 & C.7
<u>Rhamnus utilis</u>	3577		---	18' row	—	B.5 & C.7
<u>Sapium sebiferum</u>	3480		---	60' row	720 plants	B.5
<u>Viburnum rufidulum</u>	3291		---	21' row	—	B.5
<u>Vitis rotundifolia</u>	3695		---	50' row	—	C.6 & C.7

PLANTS FOR USE ON CENTRE AND OTHER SPECIAL TESTS

Species	MS No.	PI or Other No.	Amount Planned Plants (ea.)	Area in Production	Amount Harvested Plants (ea.)	Purpose of * Increase
<u>Cotoneaster</u> <u>racemiflora</u>		2936A	---	300' row	15 plants	B.5
<u>Myrica</u> <u>carolinensis</u>	3688		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3685		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3686		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3687		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3699		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3700		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3706		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3711		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3714		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3718		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3720		---	50' row	---	A.1
<u>Myrica</u> <u>cerifera</u>	3722		---	50' row	---	A.1
<u>Myrica</u> <u>gale</u>	3723		---	50' row	---	A.1
<u>Myrica</u> <u>gale</u>	3773		---	50' row	---	A.1
<u>Myrica</u> <u>pennsylvanica</u>	3702		---	50' row	---	A.1

Species	Ms No.	PI or Other No.	Amount Planned Plants (ea.)	Area in Production	Amount Harvested Plants (ea.)	Purpose of Increase
<u>Myrica pennsylvanica</u>	3703		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3704		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3705		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3707		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3708		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3709		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3710		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3713		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3715		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3716		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3717		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3719		50' row	---		A.1
<u>Myrica pennsylvanica</u>	3721		50' row	---		A.1
<u>Myrica sp.</u>	3689		50' row	---		A.1
<u>Prunus caroliniana</u>	3186	100 plants	110' row	50 plants	B.2	
<u>Prunus caroliniana</u>	3481	---	225' row	4 Plants	B.2	

* Listing of Problems begin on following page:

PROBLEMS requiring new plants are many and diverse. They are grouped in five categories, with problems in category A being given the highest priority and those in category E the lowest. Within each category the problems are arranged in order of importance; number one being the most important and the last problem the least important.

A. Problems Related to Sediment Producing Areas:

1. Controlling streambank erosion with vegetation.
2. Stabilizing gully erosion with vegetation.
3. Stabilizing sheet eroding sites with vegetation.
4. Controlling erosion on road embankments and cut banks with vegetation.
5. Vegetating mine spoil dumps.
6. Stabilizing water disposal areas with vegetation.
7. Controlling erosion on filled areas with vegetation.

B. Problems Related to Recreation and Improvement of the Environment:

1. Assemble information on the culture and management of plants needed for recreation and beautification purposes.
2. Screen plant materials to check unsightly scenes from public view.
3. Ground cover plants in areas with heavy traffic.
4. Erosion controlling plants that will withstand heavy foot traffic in shaded areas are needed for parks, playgrounds and other recreational areas.
5. Ground cover plants to control erosion and improve the appearance of the area.

6. Assemble information about plants that are adapted to sites that have been contaminated with industrial wastes.
7. Winter annual grass other than ryegrass for recreational areas with heavy foot traffic.

C. Problems Related to Wildlife Habitat Improvement:

1. Quail Food and Cover. New plants are needed to provide cover and food on problem sites such as eroding calcareous soils and mine spoil areas and utility rights-of-way. This last plant must be unacceptable to grazing animals.
2. Waterfowl Food. New plants are needed to fit the wide variety of conditions on sites frequented by waterfowl. Plants are needed that are easy to maintain and manage and which will produce large amounts of seed or green plant food.
3. Deer Browse. Perennial plants are needed to improve the winter deer browse.
4. Wild Turkey Food. There is a need for a perennial plant that will produce seed and fruit to improve wild turkey ranges.
5. Dove Food. Perennial seed producing plants would be desirable to replace annual crops which now leave the soil open to erosion for a short time each year.
6. Trees and shrubs to provide food for squirrels.
7. Trees or shrubs to provide seeds or fruit for songbirds.

D. Problems Related to Soils or Site Conditions:

1. Wave action erosion control in water impoundment structures with vegetation.
2. Ground cover plants for mine spoil areas.
3. Controlling wind erosion on croplands with vegetation.
4. Salt tolerant plants to control shoreline erosion along the Gulf Coast.
5. Salt and/or alkaline tolerant plants to control erosion on either calcareous soils or soils contaminated with salt.
6. Ground cover plants for eroding soils that are very acid.

E. Problems related to Grassland Conservation:

1. Improving soil protection and forage production with a cool season pasture plant.
2. Improving soil cover and forage production on low fertility soils or sites.
3. Improving soil cover and forage production on wet soils or sites.
4. Improving soil cover and forage production on wet soils or sites.
5. Improving range management practices by assembling information on the growth of range plants.
6. Improving soil cover and forage production with adapted legumes.
7. Improving soil cover and warm season forage production on droughty soils.
8. A warm season forage plant that can withstand flooding.
9. A perennial grass to prevent soil erosion and provide high quality frosted forage for winter grazing.
10. A leguminous plant for early fall grazing.
11. A high yielding hay plant that can be established from seed.

COMBINE SETTINGS FOR SEED HARVEST:

Echinochloa frumentacea
Chiwapa Japanese millet

Cylinder speed	- 1200 -- 1200 RPM
Cylinder to concave spacing	- 1/4" - 1/2"
Fan valves	- 1/3 open
Adj. chaffer	- 1/2 open
Finishing sieve	- 9/64"

Glycine ussuriensis
Wild reseeding soybean

Cylinder speed	- 960 RPM
Cylinder to concave spacing	- 5/8" - 1/2"
Fan valves	- Open
Adj. chaffer	- 1/2 open

Lespedeza virgata
Spreading lespedeza

Cylinder speed	- 1000 - 1200 RPM
Cylinder to concave spacing	- 1/4" - 1/2"
Fan valves	- 1/4 open
Adj. chaffer	- 1/2 open
Finishing sieve	- 9/64"

Panicum virgatum
Switchgrass

Cylinder speed	- 1200 -- 1400 RPM
Cylinder to concave spacing	- 3/8" -- 1/2"
Fan valves	- 1/4, 1/4 open
Adj. chaffer	- 1/4 to 3/8 open
Finishing sieve	- 9/64"

Paspalum notatum
Wilmington bahiagrass

Cylinder speed	- 1200 -- 1600 RPM
Cylinder to concave spacing	- 3/16" - 1/4"
Fan valves	- 1/4 open
Adj. chaffer	- 1/2 open
Finishing sieve	- 9/64"

COMBINE SETTINGS FOR S ED HARVEST -- Continued

Trifolium vesiculosum

Meehee arrowleaf clover

Cylinder speed	-	1200 -- 1600 RPM
Cylinder to concave spacing	-	1 $\frac{1}{4}$ " - 1 $\frac{1}{2}$ "
Fan valves	-	1/3 open
Adj. chaffer	-	1/2 open
Finishing sieve	-	7/64"

NOTES AND SPECIAL PROBLEMS

Many of the seeds of woody species failed to germinate or germinated very poorly in 1972. Fall planting in November or December 1971 was impossible. These seed were planted in April 1972, and some had received inadequate stratification.

Crabgrass infestation in the seed fields of 'Wilmington' bahiagrass was a real problem. The pre-emergence herbicide simazine gave poor control of this weed this year, although it has given good control most years.

PURE SEED AND GERMINATION PERCENTAGES OF SEED LOTS TESTED:

Species	MS No.	% Germination	% Hard Seed	% Firm Seed	% Pure Seed
<u>Eragrostis curvula</u> Weeping lovegrass	F.P.	76.0	0.0	0.0	99.10
<u>Festuca arundinacea</u> Ky 31 fescue	1601-	93.0	0.0	0.0	98.15
<u>Glycine ussuriensis</u> Wild reseeding soybean	128	74.0	0.0	0.0	97.27
<u>Lespedeza cuneata</u> Sericea lespedeza	---	79.0	4.0	0.0	99.19
<u>Panicum virgatum</u> Pangburn switchgrass	155	39.5	0.0	0.0	95.15
<u>Paspalum notatum</u> Wilmington bahiagrass	Foundation	94.0	0.0	0.0	93.95
<u>Trifolium nigrescens</u> Ball clover	---	18.5	73.0	0.0	97.40
<u>Trifolium vesiculosum</u> Meehee Arrowleaf clover	---	34.5	53.0	0.0	99.42
<u>Trifolium vesiculosum</u> Meehee Arrowleaf clover	Foundation	25.0	63.0	0.0	99.51

INFORMATION

A number of articles were written in local newspapers in 1972 describing work done by the Center. These are too numerous to mention, and copies of some of these articles are not available. All of the following articles written in 1972 concern work done by the Coffeeville Plant Materials Center.

1. Manning, Earl. 1972. The Search for New and Better Plants. *The Progressive Farmer*. Vol. 87, No. 9. p 24.
2. Price, Vincent J. 1972. The Economics of New Plants. *Soil Conservation*. Vol. 38. pp 67-70.
3. No author is listed for the following article.
-1972. Sawtooth Oak Feeds Wildlife. *The Progressive Farmer*. Vol. 87. No. 3. p 76A.
4. The following article appeared in the Coffeeville Courier, July 20, 1972. "Local Plant Materials Center Seeks Plants to Fill All Needs; is Visited by Many States."
5. The following article appeared in the Clarion Ledger (Jackson, Miss.) on February 2, 1972, and in other newspapers.
"New Grass Covers. Deep Gullies Filled, Football Field Built."

VISITATIONS

On July 7, 1972, a field day was held at the Plant Materials Center. Approximately 250 people from Alabama, Arkansas, Louisiana, Mississippi, and Tennessee attended.

Various other smaller groups visited the Center during the year. These included students in summer training programs, a ladies garden club group, and persons with only a personal interest in the Center.

GRASSES, LEGUMES, AND HERBACEOUS PLANTS

Species	PI or Other No.	MS No.	Growth Type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Acroceras macrum</i>	364376	3810	PS	-	7	7	-	Oct.	10"
<i>Acroceras macrum</i>	364375	3811	PS	-	3	5	-	Aug.	22"
<i>Agropyron caninum</i>	277868	3375	Died	-	-	-	-	-	12"
<i>Agropyron caninum</i>	314612	3376	PS	-	7	9	1	-	10"
<i>Agropyron caninum</i>	314615	3377	PS	-	7	9	1	-	10"
<i>Agropyron caninum</i>	314616	3378	PS	-	7	9	1	-	12"
<i>Agropyron caninum</i>	314628	3379	Died	-	-	-	-	-	12"
<i>Agropyron caninum</i>	314629	3380	Died	-	-	-	-	-	12"
<i>Agropyron caninum</i>	172364	3453	PS	-	-	-	-	None	6"
<i>Agropyron caninum</i>	235086	3455	PS	-	-	-	-	-	6"
<i>Agropyron caninum</i>	253290	3457	Died	-	-	-	-	-	-
<i>Agropyron ciliare</i>	276395	3458	Died	-	-	-	-	-	-
<i>Agropyron ciliatiflorum</i>	229426	3459	Died	-	-	-	-	-	-
<i>Agropyron elongatum</i>	142012	3011	PS	-	-	-	-	July	12"
<i>Agropyron elongatum</i>	98526	3012	PS	-	-	-	-	July	10"
<i>Agropyron elongatum</i>	150123	3013	PS	-	-	-	-	July	10"
<i>BN 6096-62</i>	28316L	3019	PS	-	-	-	-	July	10"
<i>Agropyron elongatum</i>	297871	3020	PS	-	-	-	-	July	12"
<i>Agropyron elongatum</i>	315352	3021	PS	-	-	-	-	July	10"
<i>Agropyron elongatum</i>		3023	PS	-	-	-	-	July	14"
<i>Agropyron elongatum</i>	98526	3028	PS	-	-	-	-	Aug.	10"
<i>Agropyron elongatum</i>	179169	3029	PS	-	-	-	-	July	8"
<i>Agropyron elongatum</i>	2d4383	3030	PS	-	-	-	-	July	10"
<i>Agropyron elongatum</i>	205279	3031	PS	-	-	-	-	July	10"
<i>Agropyron elongatum</i>	206622	3032	PS	-	-	-	-	Aug.	12"

Species	PT or Other No.	MS No.	Growth Type	Seed Prod.	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Agropyron elongatum</i>	206623	3033	PS	-	3	3	1	July	16"
<i>Agropyron elongatum</i>	206624	3034	PS	-	7	7	1	July	8"
<i>Agropyron elongatum</i>	222958	3035	PS	-	3	5	1	July	12"
<i>Agropyron elongatum</i>	249144	3038	PS	-	3	5	1	July	12"
<i>Agropyron elongatum</i>	251443	3039	PS	-	5	3	1	July	12"
<i>Agropyron elongatum</i>	255146	3040	PS	-	5	3	1	July	10"
<i>Agropyron elongatum</i>	255148	3041	PS	-	5	5	1	July	8"
<i>Agropyron elongatum</i>	255149	3042	PS	-	7	7	1	July	10"
<i>Agropyron pectiniforme</i>	312438	3382	Died	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	315357	3383	Died	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	315358	3384	Died	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	273735	3461	Died	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	315360	3463	Died	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 18616	3597	PS	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 18617	3598	PS	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 18725	3599	PS	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 8473-67	3014	PS	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 12002-60	3015	PS	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 162229-64	3018	PS	-	-	-	-	-	-
<i>Agropyron pectiniforme</i>	BN 6105-64	3022	PS	-	-	-	-	-	-
<i>Agropyron smithi</i>	A-13081	3024	PS-	-	-	-	-	-	-
<i>Agropyron smithi</i>	C-27	3025	PS	-	-	-	-	-	-
<i>Agropyron smithi</i>	15614	3026	PS	-	-	-	-	-	-
<i>Agropyron striatum</i>	269891	3386	Died	-	-	-	-	-	-
<i>Agropyron striatum</i>	207452	3464	Died	-	-	-	-	-	-
<i>Agropyron striatum</i>	207453	3465	Died	-	-	-	-	-	-
<i>Agropyron striatum</i>	223235	3466	Died	-	-	-	-	-	-
<i>Ajuga</i> sp.○		3681	PS	-	-	-	-	-	-
<i>Arundinaria Michx.</i> sp.	S 2410	3526	PS	-	-	-	-	-	-
<i>Arundinaria tecta</i>	TN 71-2	3525	PS	-	-	-	-	-	-
<i>Arundo donax</i>	3606	Died	-	-	-	-	-	-	-

Species	PI or Other No.	MS No.	Growth Type	Seed. Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Mature- ity	Plant height
<i>Bothriochloa caucasica</i>	PMT 588	2913	PB	-	5	5	1	July	18"
<i>Bothriochloa glabra</i>	364391	3812	PR	5	5	5	-	Oct.	24"
<i>Bothriochloa insculpta</i>	364396	3813	PB	5	7	7	-	Aug.	12"
<i>Bothriochloa insculpta</i>	364397	3811	Died						
<i>Bothriochloa intermedia</i>	PMT 1062	2912	PB						
<i>Bothriochloa intermedia</i>	PMT 1065	2915	PB						
<i>Brachypodium pinnatum</i>	206682	262	PB						
<i>Brachypodium pinnatum</i>	185135	640	PB						
<i>Brachypodium pinnatum</i>	206545	641	PB						
<i>Brachypodium pinnatum</i>	268325	2249	PB						
<i>Brachypodium pinnatum</i>	206547	3323	PB						
<i>Brachypodium pinnatum</i>	206548	3324	PB						
<i>Brachypodium pinnatum</i>	BN 9156	3325	PB						
<i>Brachypodium pinnatum</i>	230112	3326	PB						
<i>Brachypodium pinnatum</i>	253298	3328	PB						
<i>Brachypodium pinnatum</i>	172692	3329	PB						
<i>Brachypodium pinnatum</i>	230113	3330	PB						
<i>Brachypodium pinnatum</i>	206441	3331	PB						
<i>Brachypodium pinnatum</i>	240151	3332	PB						
<i>Brachypodium pinnatum</i>	268219	3333	PB						
<i>Brachypodium pinnatum</i>	BN 15859	3335	PB						
<i>Brachypodium pinnatum</i>	316169	3336	PB						
<i>Brachypodium pinnatum</i>	325213	3337	Discarded						
<i>Brachypodium pinnatum</i>	325216	3338	PB						
<i>Brachypodium pinnatum</i>	206620	3339	PB						
<i>Brachypodium pinnatum</i>	206650	3340	PB						
<i>Brachypodium pinnatum</i>	206677	3341	PB						
<i>Brachypodium pinnatum</i>	229676	3342	PB						
<i>Brachypodium pinnatum</i>	230241	3343	PB						
<i>Brachypodium pinnatum</i>	249722	3344	PB						
<i>Brachypodium sylvaticum</i>	206546	642	PB						

Species	PI or Other No.	MS No.	Growth Type	Seed. Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
Brachypodium sylvaticum	171650	3345	Died						12"
Brachypodium sylvaticum	173700	3346	Died						10"
Brachypodium sylvaticum	237792	3347	PB						10"
Brachypodium sylvaticum	251102	3348	PB						10"
Brachypodium sylvaticum	268222	3349	PB						12"
Brachypodium sylvaticum	287787	3350	PB						12"
Brachypodium sylvaticum	223669	3351	Died						
Brachypodium sylvaticum	204863	3352	PB						
Brachypodium sylvaticum	204865	3353	PB						
Brachypodium sylvaticum	172383	3354	PB						
Brachypodium sylvaticum	206619	3355	PB						
Brachypodium sylvaticum	269812	3356	Died						
Brachypodium sylvaticum	315380	2956	PB						
Bromus inermis	314071	2957	PB						
Bromus inermis	AM 1360	3181	PB						
Bromus riparius	251693	3542	PB						
Bromus riparius	297887	3543	PB						
Bromus riparius	297889	3544	PB						
Bromus riparius	314513	3546	PB						
Bromus riparius	314514	3547	PB						
Bromus riparius	314515	3548	PB						
Bromus riparius	314516	3549	PB						
Bromus riparius	315372	3550	PB						
Bromus riparius	315380	3551	PB						
Bromus riparius	315386	3552	PB						
Bromus riparius	315387	3553	PB						
Bromus riparius	315388	3554	PB						
Bromus riparius	315389	3555	PB						
Bromus riparius	315390	3556	PB						
Bromus riparius	315391	3557	PB						
Bromus riparius	315392	3558	PB						
Bromus riparius	315393	3559	PB						

Species	PI or Other No.	MS No.	Growth Type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Bromus riparius</i>	315394	3560	PB	-	7	9	1	July	08"
<i>Bromus riparius</i>	315397	= 3561	PB	-	7	9	1	July	07"
<i>Bromus riparius</i>	315676	3562	PB	-	9	9	1	-	06"
<i>Bromus cf. riparius</i>	283197	3563	PB	-	9	9	1	-	05"
<i>Bromus unioloides</i>	316176	2697	PB	-	7	3	1	June	12"
<i>Bromus unioloides</i>	316177	2698	PB	-	5	3	1	June	12"
<i>Bromus willdenowii</i>		2699	PB	-	5	5	1	June	12"
<i>Cajanus cajan</i>	218066	3809	AB	-	5	5	10	Nov.	48"
<i>Calamagrostis pseudophragmites</i>	206883	3360	PS	-	5	7	3	July	24"
<i>Calamagrostis pseudophragmites</i>	220584	3361	PS	-	5	7	1	July	24"
<i>Calamagrostis pseudophragmites</i>	220586	3363	Died	-	3	7	1	July	24"
<i>Calamagrostis pseudophragmites</i>	222041	3364	PS	-	3	7	1	July	30"
<i>Clenstachne sorghoides</i>	368246	3769	PS	-	5	9	10	-	04"
<i>Cynodon dactylon 'No-Mow'</i>		2643	PS	-	5	5	1	-	06"
<i>Cytisus canariensis</i>	BN 19688	3615	PS	-	5	9	1	-	12"
<i>Dactylis glomerata</i>	BN 19167-67	3803	P	-	3	5	1	June	12"
<i>Corcyrum rectum</i>	274460	3027	PB	-	-	-	-	-	-
<i>Echinochloa holubii</i>	364795	3782	NG	-	-	-	-	-	-
<i>Echinochloa pyramidalis</i>	365509	3815	VD	-	-	-	-	-	-
<i>Eragrostis curvula</i>		3816	VD	-	-	-	-	-	-
<i>Eragrostis curvula</i>	PMT 603	3437	PB	-	-	-	-	-	-
<i>Eragrostis curvula</i>	PMT 604	3389	PB	-	-	-	-	-	-
<i>Eragrostis curvula</i>	PMT 710	3446	PB	-	-	-	-	-	-
<i>Eragrostis curvula</i>	PMT 729	3447	PB	-	-	-	-	-	-
<i>Eragrostis curvula</i>		3448	PB	-	-	-	-	-	-
<i>Eragrostis curvula</i>		3484	PB	-	-	-	-	-	-
<i>Erichloa borumensis</i>		3485	PR	-	-	-	-	-	-
<i>Festuca pallenscens</i>	364837	3817	PS	-	3	-	-	-	-
<i>Fingerhuthia sesleriaeformis</i>	269647	3470	Died	-	-	-	-	-	-
<i>Fingerhuthia sesleriaeformis</i>	196359	3409	PS	-	3	5	1	July	14"
<i>Fingerhuthia sesleriaeformis</i>	203354	3410	PS	-	3	5	1	July	16"
<i>Fingerhuthia sesleriaeformis</i>	299668	3411	PS	-	3	5	1	July	16"
<i>Fingerhuthia sesleriaeformis</i>	299969	3412	PS	-	3	5	1	July	16"
<i>Fingerhuthia sesleriaeformis</i>	299970	3413	PS	-	3	5	1	July	16"

Species	PI or Other No.	MS No.	Growth Type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Helianthus maximilianii</i>	PI-1564-70	3514	PB	-	1	5	1	Oct. Sept.	72" 54"
<i>Helianthus mollis</i>	PM-k 410	3373	PS	-	3	1	1	-	24"
<i>Helianthus</i> sp. •		3374	Discarded	-	1	9	1	-	24"
<i>Hemarthria altissima</i>		29993	2916	PS	5	9	3	-	24"
<i>Hemarthria altissima</i>		29995	2919	PS	5	9	-	-	12"
<i>Hemarthria altissima</i>		36434	3647	PS	5	9	-	-	12"
<i>Hemarthria altissima</i>		364862	3648	PS	5	9	-	-	10"
<i>Hemarthria altissima</i>		364864	3649	PS	7	9	-	-	24"
<i>Hemarthria altissima</i>		364866	3651	PS	1	9	-	-	08"
<i>Hemarthria altissima</i>		364867	3652	PS	3	7	-	-	06"
<i>Hemarthria altissima</i>		364868	3653	PS	7	5	-	-	08"
<i>Hemarthria altissima</i>		364869	3654	PS	1	5	-	-	20"
<i>Hemarthria altissima</i>		364870	3655	PS	5	5	-	-	18"
<i>Hemarthria altissima</i>		364873	3657	PS	5	5	-	-	36"
<i>Hemarthria altissima</i>		364875	3658	PS	5	5	-	-	18"
<i>Hemarthria altissima</i>		364876	3659	PS	5	5	-	-	18"
<i>Hemarthria altissima</i>		364877	3660	PS	5	5	-	-	18"
<i>Hemarthria altissima</i>		364879	3661	PS	5	5	-	-	18"
<i>Hemarthria altissima</i>		364879	3662	PS	5	5	-	-	08"
<i>Hemarthria altissima</i>		364881	3664	PS	5	5	-	-	08"
<i>Hemarthria altissima</i>		364882	3665	PS	5	5	-	-	12"
<i>Hemarthria altissima</i>		364886	3666	Died	-	-	-	-	-
<i>Hemarthria altissima</i>		364887	3667	PS	-	-	-	-	-
<i>Hemarthria altissima</i>		364889	3668	PS	-	-	-	-	-
<i>Hemarthria altissima</i>		364891	3669	PS	-	-	-	-	-
<i>Hemerocallis</i> sp. •		AM 1319	2164	PS	9	9	1	1	36"
<i>Hemerocallis</i> sp. •			2165	PS	9	9	1	1	36"
<i>Hemerocallis</i> sp. •			3209	PS	9	9	1	1	30"
<i>Indigofera leptosepala</i>	PMT 1051	2630	PS	-	-	-	-	-	30"
<i>Indigofera miniata</i>	PMT 2535-71	2679	PS	3	-	-	-	-	08"
<i>Indigofera pseudotinctoria</i>	BN 10774	3798	PS	3	-	-	-	-	04"
<i>Iris albispiritus</i>	F 3808	2952	PS	-	-	-	-	-	24"
<i>Iris</i> sp. •		2357	PS	-	-	-	-	-	24"
		2234	PS	-	-	-	-	-	June

Species	PI or Other No.	MS No.	Growth type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matur- ity	Plant Height
<i>Iris</i> sp.,		2235	PS	-	5	9	1	June	30"
<i>Iris</i> sp.,		2236	PB	-	7	9	1	July	30"
<i>Ischaemum arcuatum</i>	365510	3818	PS	5	5	7	-	Oct.	18"
<i>Lathyrus latifolia</i>		3261	PB	-	5	5	1	July	48"
<i>Leersia aquatica</i>		3176	Died						
<i>Leersia hexandra</i>		3670	PS	5					
<i>Lespedeza inshanica</i>	364346	3571	Died						
<i>Lespedeza inshanica</i>	318640	3571	Died						
<i>Lespedeza tomentosa</i>	349421	3572	Died						
<i>Lespedeza tomentosa</i>	318641	3529	Died						
<i>Lespedeza virginicus</i>		3166	Died						
<i>Lespedeza x divaricata</i>		3570	Died						
<i>Liriope</i> sp.,		2577	PS	-	1	3	1	Oct.	10"
<i>Liriope graminifolia</i>	BN 10762	2588	PB	-	3	5	1	Aug.	12"
<i>Liriope muscari v variegata</i>		BN 11069	2578	PS	-	3	5	1	Oct.
<i>Lotus corniculatus</i>		G 18984	3223	PB	-	7	5	July	12"
<i>Lotus corniculatus</i>		G 18986	3224	PB	-	3	1	July	08"
<i>Lotus corniculatus</i>		G 18987	3225	PB	-	Died			10"
<i>Lotus corniculatus</i>		G 18989	3226	PB	-	1	5	July	08"
<i>Lotus corniculatus</i>		273937	3227	PB	-	Died			10"
<i>Lotus corniculatus</i>		296318	3228	PB	-	Died			
<i>Lotus corniculatus</i>		316266	3229	PB	-	Died			
<i>Lotus corniculatus</i>		316267	3230	PB	-	3	1	July	10"
<i>Lotus corniculatus</i>		316268	3231	PB	-	Died			
<i>Lotus corniculatus</i>		316269	3232	PB	-	Died			
<i>Lotus corniculatus</i>		322555	3234	Discarded					
<i>Lotus corniculatus</i>		322556	3235	Died					
<i>Lotus corniculatus</i>		329246	3236	Died					
<i>Lotus corniculatus</i>		331177	3237	Died					
<i>Lotus corniculatus</i>		3610	Died						
<i>Lotus corniculatus</i>		3240	Died						
<i>Medicago arborea</i>	300015	3610	Died						
<i>Medicago arborea</i>	368171	3770	PB	5	7	-	-	Died	06"
<i>Medicago arborea</i>	368177	3771	PB	5	7	-	-	Died	06"
<i>Medicago arborea</i>	368165	3772	PB	5	7	-	-	Died	06"

Species	PI or Other No.	MS No.	Growth Type	Seed Prod.	Leaf Prod.	Seed Prod.	Winter Injury	Maturity	Plant Height
Panicum coloratum	300039	2543	P3	-	5	3	1	July	16"
Panicum coloratum	300041	2544	PB	-	Died	3	1	Aug.	30"
Panicum coloratum	315721	3414	PB	-	5	3	1	Aug.	24"
Panicum coloratum	166400	3416	PB	-	5	3	1	Aug.	24"
Panicum coloratum	185548	3418	Died	-	3	3	1	Aug.	24"
Panicum coloratum	185550	3419	PS	-	3	3	1	Aug.	24"
Panicum coloratum	188932	3420	PB	-	3	3	1	Aug.	30"
Panicum coloratum	196360	3422	PB	-	3	3	1	July	24"
Panicum coloratum	196361	3423	PB	-	3	5	1	Aug.	24"
Panicum coloratum	196362	3424	PB	-	3	5	1	July	24"
Panicum coloratum	253243	3429	PB	-	3	5	1	July	30"
Panicum coloratum	253247	3430	PB	-	3	5	1	Aug.	30"
BN 12322-59	3433	PB	-	3	5	5	1	July	24"
	3725	PB	-	5	5	5	1	Aug.	24"
	3726	PB	-	5	5	5	1	Aug.	10"
	3727	PB	-	3	3	5	1	Aug.	16"
	3728	PB	-	3	3	5	1	Aug.	18"
	3729	PB	-	3	3	5	1	Aug.	16"
	3730	PB	-	3	3	5	1	Aug.	16"
	3731	PB	-	3	3	5	1	Aug.	16"
	3732	PB	-	3	3	3	1	Aug.	24"
	3733	PB	-	3	3	3	1	Aug.	30"
Panicum coloratum	209003	353249	PB	-	3	5	1	Aug.	30"
Panicum coloratum	208004	255332	PB	-	3	5	1	Aug.	30"
Panicum coloratum	208005	255333	PB	-	3	3	3	Aug.	24"
Panicum coloratum	208943	255334	PB	-	3	3	3	Aug.	36"
Panicum coloratum	209002	255335	PB	-	3	3	3	Aug.	24"
Panicum coloratum	255333	255336	PB	-	3	3	3	Aug.	30"
Panicum coloratum	255235	3737	PB	-	3	3	3	Aug.	28"
Panicum coloratum	263602	3738	PB	-	3	3	3	Aug.	24"
Panicum coloratum	263603	3739	PB	-	3	3	3	Aug.	36"
Panicum coloratum	263604	3740	PB	-	3	3	3	Aug.	24"
Panicum coloratum	263605	3741	PB	-	3	3	3	Aug.	24"
Panicum coloratum	263606	3742	PB	-	3	3	3	Aug.	30"
Panicum coloratum	263607	3743	PB	-	3	3	3	Aug.	36"
Panicum coloratum	277963	3744	PB	-	3	3	3	Aug.	14"
Panicum coloratum	298988	3745	PB	-	3	3	3	Aug.	14"

Species	Pi or Other No.	MS No.	Growth Type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Maturity	Plant Height
<i>Panicum coloratum</i>	299427	3746	PB	3	3	3	3	36"	Aug.
<i>Panicum coloratum</i>	300042	3747	PB	3	3	3	5	18"	Aug.
<i>Panicum coloratum</i>	306628	3748	PB	3	3	3	5	16"	Aug.
<i>Panicum coloratum</i>	BN 8289	3180	PB	-	3	3	9	36"	Aug.
<i>Panicum hemitomon</i>		2908	PS	-	3	3	1	30"	
<i>Panicum hemitomon</i>		3285	PS =	-	3	5	1	-	12"
<i>Panicum hemitomon</i>		3631	PS	-	5	3	1	-	24"
<i>Panicum hiang</i>	Am 1684	2909	PS	-	3	3	1	June	12"
<i>Panicum makarikariense</i>	184776	3749	PB	3	3	3	3	24"	Aug.
<i>Panicum makarikariense</i>	203520 =	3750	PB	3	3	3	3	30"	Aug.
<i>Panicum makarikariense</i>	208998	3751	PB	3	3	3	3	24"	Aug.
<i>Panicum makarikariense</i>	210692	3180	PB	-	3	3	2	36"	Aug.
<i>Panicum makarikariense</i>	295647	3753	PB	3	3	3	3	24"	Aug.
<i>Panicum makarikariense</i>	295649	3754	PB	3	5	5	-	Aug.	24"
<i>Panicum maximum</i>		3283	AB	1	1	1	-	Sept.	60"
<i>Panicum maximum</i>	364963	3671	AB	3	3	3	-	Aug.	24"
<i>Panicum sp. "</i>		3284	PB	-	1	5	5	24"	Oct.
<i>Panicum stapfianum</i>	300058	2727	PB	3	3	3	3	10"	July
<i>Panicum stapfianum</i>	178257	3438	PB	3	3	3	3	18"	July
<i>Panicum stapfianum</i>	185547	3439	PB	3	3	3	3	18"	July
<i>Panicum stapfianum</i>		190327	3440	PB	-	3	3	24"	July
<i>Panicum stapfianum</i>		300059	3444	PB	-	3	3	18"	July
<i>Panicum stapfianum</i>	208042	3755	PB	3	3	3	3	24"	Aug.
<i>Panicum stapfianum</i>	208013	3756	PB	3	3	3	3	18"	Aug.
<i>Panicum stapfianum</i>	208014	3757	PB	3	3	3	3	16"	Aug.
<i>Panicum stapfianum</i>	208015	3758	PB	3	3	3	3	24"	Aug.
<i>Panicum stapfianum</i>	208016	3759	PB	3	5	5	5	16"	Aug.
<i>Panicum stapfianum</i>	208017	3760	PB	5	7	5	5	16"	Aug.
<i>Panicum stapfianum</i>	208107	3761	NG	-	-	-	-	14"	
<i>Panicum stapfianum</i>	208176	3762	PB	-	-	-	-	14"	
<i>Panicum stapfianum</i>	208246	3763	NG	-	-	-	-	14"	
<i>Panicum stapfianum</i>	208247 =	3764	PB	-	-	-	-	16"	
<i>Panicum stapfianum</i>	208400	3765	PB	3	3	3	3	14"	
<i>Panicum stapfianum</i>	208401	3766	PB	3	5	5	5	14"	

Species	PI or Other No.	MS No.	Growth Type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Panicum stapfianum</i>	208402	3767	PB	5	7	5	-	Aug.	12"
<i>Pappophorum</i> sp.	331155	2998	PB	-	5	5	3	Aug.	30"
<i>Paspalum commersonii</i>	364977	3673	PS	-	7	9	1	Aug.	06"
<i>Paspalum commersonii</i>	364979	3674	PS	-	5	9	1	Aug.	06"
<i>Paspalum commersonii</i>	364980	3675	PS	-	7	9	1	Aug.	04"
<i>Paspalum commersonii</i>	365511	3680	PS	-	7	9	1	July	04"
<i>Paspalum commersonii</i>	364978	3712	Died	-	7	7	1	July	-
<i>Paspalum cromyorrhizon</i>	276242	2985	PS	-	3	3	1	July	18"
<i>Paspalum cromyorrhizon</i>	310059	3213	PS	-	1	7	1	July	16"
<i>Paspalum cromyorrhizon</i>	310061	3251	PS	-	5	7	1	July	18"
<i>Paspalum cromyorrhizon</i>	BN 16632-65	3252	PS	-	5	7	1	Aug.	18"
<i>Paspalum cromyorrhizon</i>	BN 16638-69	3253	PS	-	5	7	1	July	18"
<i>Paspalum cromyorrhizon</i>	364981	3676	PS	-	5	9	3	July	06"
<i>Paspalum distichum</i>	364982	3677	PS	-	5	9	3	July	06"
<i>Paspalum distichum</i>	364983	3678	PS	-	5	9	1	July	06"
<i>Paspalum giganteum</i>	AM 97	3282	PS	5	7	7	-	Oct.	12"
<i>Paspalum minus</i>		3263	PS	-	7	7	-	Aug.	08"
<i>Pennisetum clandestinum</i>	364350	3819	AS	3	3	9	-	-	08"
<i>Pennisetum macrourum</i>	361988	3820	PB	3	3	9	-	-	48"
<i>Pennisetum macrourum</i>	364989	3821	PS	3	3	9	-	-	72"
<i>Pennisetum macrourum</i>	364990	3822	PS	3	7	9	-	Sept.	36"
<i>Pennisetum unisetum</i>	3d4750	3450	NG	-	7	7	1	June	16"
<i>Phalaris aquatica</i>	302473	2729	PS	-	7	7	1	July	12"
<i>Phalaris aquatica</i>	316320	2730	PS	-	5	5	1	July	12"
<i>Phalaris aquatica</i>	PMT 939	3160	PS	-	3	5	1	June	18"
<i>Phalaris aquatica</i> x <i>arundinacea</i>	BN 12103-63	1897	PS	-	5	7	1	June	18"
<i>Phalaris aquatica</i> x <i>arundinacea</i>	BN 13575-66	2547	PS	-	1	5	1	June	30"
<i>Phalaris aruhdinacea</i>	316330	2731	PS	-	7	5	1	June	-
<i>Phalaris aruhdinacea</i>	297362	2840	Discarded	-	3	3	1	June	30"
<i>Phalaris aruhdinacea</i>	236525	2931	PS	-	3	3	1	June	24"
<i>Phalaris tuberosa</i>		2641	PS	-	7	9	1	June	48"
<i>Phragmites communis</i>	PWK 1271	3109	PS	-	-	-	-	-	-
<i>Phragmites communis</i>	T 2380	3642	Died	-	-	-	-	-	-

Species	PT or Other No.	MS No.	Growth Type	Seed Prod.	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Phragmites communis</i>	T 2376	3643	Died				1	Sept.	36"
<i>Polygonum cuspidatum</i>	TN 71-3	3524	PS			5	7	Sept.	18"
<i>Polygonum cuspidatum</i>	compactum	3246	PS			5	7	Sept.	18"
<i>Polygonum cuspidatum</i>	NY 1119	3489	PB			9	5	July	06"
<i>Polygonum cuspidatum</i>	211074	3490	PB			9	5	July	06"
<i>Polygonum fugax</i>	219939	3491	PB			9	5	July	06"
<i>Polygonum fugax</i>	220617	3492	PB			9	5	July	06"
<i>Polygonum fugax</i>	220619	3493	Discarded			9	1	July	06"
<i>Polygonum monspeliensis</i>	202514	3494	Discarded			5	1	July	1
<i>Polygonum monspeliensis</i>	219940	3495	Discarded			5	1	July	1
<i>Polygonum monspeliensis</i>	201728	3496	Discarded			5	1	July	1
<i>Polygonum monspeliensis</i>	804729	3497	Discarded			5	1	July	1
<i>Polygonum monspeliensis</i>	287919	3498	Discarded			5	1	July	1
<i>Polygonum monspeliensis</i>	317466	3499	Discarded			5	1	July	1
<i>Polygonum monspeliensis</i>	317467	3277	PB			5	1	July	1
<i>Rudbeckia</i> sp.,		3278	PB			5	1	July	1
<i>Rudbeckia</i> sp.,		3279	PB			5	1	July	1
<i>Rudbeckia</i> sp.,		3280	PB			5	1	July	1
<i>Rudbeckia</i> sp.,		3287	PB			5	1	July	1
<i>Rudbeckia</i> sp.,		3318	PB			5	1	July	1
<i>Sorghum</i> sp.,		3829	AB			5	1	Sept.	20"
<i>Sorghastrum nutans</i>		145	PB			5	1	Oct.	30"
<i>Sorghastrum nutans</i>		228	PB			5	1	Oct.	48"
<i>Sorghastrum nutans</i>		1746	PB			5	1	Oct.	42"
<i>Sorghastrum nutans</i>		1747	PB			5	1	Oct.	48"
<i>Sorghastrum nutans</i>		1748	PB			5	1	Oct.	48"
<i>Sorghastrum nutans</i>		2227	PB			5	1	Oct.	42"
<i>Sorghastrum nutans</i>		2462	PB			5	1	Oct.	48"
<i>Sorghastrum nutans</i>		2463	PB			5	1	Aug.	24"
<i>Sorghastrum nutans</i>		2464	PB			5	1	Sept.	30"
<i>Sorghastrum nutans</i>		2465	PB			5	1	Sept.	36"
<i>Sorghastrum nutans</i>		2466	PB			5	1	Sept.	42"
<i>Sorghastrum nutans</i>		2467	PB			5	1	Sept.	42"

Species	PI or Other No.	MS No.	Growth Type	Seed Vigor	Leaf Prod.	Seed Prod.	Winter Injury	Matu- rity	Plant Height
<i>Sorghastrum nutans</i>	AM 1323	2468	PB	-	3	3	1	Oct.	54"
<i>Sorghastrum nutans</i>	AM 1386	2469	PB	-	3	3	1	Oct.	54"
<i>Sorghastrum nutans</i>	AM 1387	2471	PB	-	3	3	1	Oct.	42"
<i>Sorghastrum nutans</i>	AM 1388	2472	PB	-	3	5	1	Oct.	42"
<i>Sorghastrum nutans</i>	AM 1760	2473	PB	-	3	3	1	Oct.	42"
<i>Sorghastrum nutans</i>		2477	PB	-	3	3	1	Oct.	30"
<i>Sorghastrum nutans</i>		2478	PB	-	3	3	1	Oct.	42"
<i>Sorghastrum nutans</i>		2479	PB	-	5	5	1	Sept.	36"
<i>Sorghastrum nutans</i>		2482	PB	-	3	3	1	Oct.	48"
<i>Sorghastrum nutans</i>		2558	PB	-	3	3	1	Oct.	42"
<i>Sporobolus virginicus</i>	288252	3296	Died						
<i>Sporobolus virginicus</i>	300126	3297	Died						
<i>Stipa barbata</i>	330722	3006	Discarded						
<i>Stipa pulchra</i>	PL 105-71	3632	Died						
<i>Stipa pulchra</i>	PL 104-71	3633	Died						
<i>Themeda anathera</i>	368029	3775	PB		5	7	-	Aug.	16"
<i>Themeda triandra</i>	206349	1860	PB	-	5	3	1	July	12"
<i>Urochloa mosambicensis</i>	365088	3824	AS	3	3	3	-	Auc.	18"
<i>Urochloa mosambicensis</i>	365076	3825	AS	5	5	5	-	Auc.	12"
<i>Urochloa mosambicensis</i>	365084	3826	AS	3	3	5	-	Aug.	16"
<i>Urochloa mosambicensis</i>	365086	3827	AS	3	3	5	-	Aug.	18"
<i>Urochloa mosambicensis</i>	364371	3828	NG						
<i>Urochloa stolonifera</i>	365517	3823	Died						
<i>Vicia tenuifolia</i>	314349	3591	NG						
<i>Zizaniopsis miliacea</i>		3125	PS	-	3	7	1	Aug.	48"
<i>Zizaniopsis miliacea</i>		3126	PS	-	3	7	1	Aug.	48"
<i>Zizaniopsis miliacea</i>		3127	PS	-	5	7	1	Aug.	42"
<i>Zizaniopsis miliacea</i>		3128	PS	-	3	7	1	July	54"
<i>Zizaniopsis miliacea</i>		3183	PS	-	5	1	1	Oct.	18"
<i>Zizaniopsis miliacea</i>		3190	PS	-	1	7	1	July	60"
	3191		Died						

CODE:

A. - Annual
P. - Perennial
NG. - No Germination

1 - Excellent
3 - Good
5 - Fair

7 - Poor
9 - Very Weak

B - Bunch
S - Sod

TREES AND SHRUBS

The following are initial observations ratings for trees and shrubs. These observations are made the year of planting and approximately each three to five years thereafter. They may be made yearly if growth characteristics justifies it.

Species	PI or Other No.	MS No.	Date Planted	Deci- dious	Ever- green	Insect Injury	Winter Injury	Matu- rity	Plant Height	Plant Width
<i>Abies kawakamii</i>	324940	3592	3-23-71	x	1	1	-	-	10"	03"
<i>Abies koreana</i>	317188	3593	Died							
<i>Akebia quinata</i>	M1 1100	3211	4-2-70	x	1	1	-	-	12"	72"
<i>Alnus mayrpii</i>	317356	2902	Died							
<i>Arctostaphylos uva-ursi</i>	BN 8967	3682	9-24-71	x	1	1	-	-	08"	12"
<i>Buxus harlandii</i>	66282	3627	11-5-71	x	1	1	-	-	08"	06"
<i>Castanea mollissima</i>	AM 2529	3506	4-16-71	x	1	1	-	-	24"	24"
<i>Castanopsis sclerophylla</i>	5839L	3171	12-69	x	1	1	-	-	08"	06"
<i>Chamaerops maria</i>		3611	Died							
<i>Citrangequat</i>	CVB 480100	3644	7-20-71	x	1	7	-	-	60"	12"
<i>Cornus stolonifera</i>	BN 18921-70	3871	4-72	x	1	1	-	-	15"	12"
<i>Elaeagnus umbellata</i>	3515	Died								
<i>Euonymus bungeanus</i>	2945	NC								
<i>Hydrangea integrifolia</i>	985	3216	Died							
<i>Juglans regia</i>	AM 2569	3512	Died							
<i>Juniperus ashei</i>	BN 20388	3611	5-1-73	x	1	-	-	-	06"	08"
<i>Juniperus chinensis</i>	317238	3594	3-23-71	x	1	1	-	-	18"	12"
<i>Juniperus silicicola</i>	BN 20389	3612	4-72	x	1	1	-	-		

Species	PI or Other No.	MS No.	Date Planted	Decid- uous	Ever- green	Insect- Injury	Winter Injury	Matu- rity	Plant Height	Plant Width
<i>Libocedrus decurrens</i>		3168	11-69						18"	12"
<i>Loniceria maackii</i>	NJ 918-70	3522	Died							
<i>Myrica carolinensis</i>		3688	4-10-72-NG							
<i>Myrica cerifera</i>		3685	4-10-72-NG							
<i>Myrica cerifera</i>		3686	4-10-72-NG							
<i>Myrica cerifera</i>		3687	4-10-72-NG							
<i>Myrica cerifera</i>		3699	4-10-72-NG							
<i>Myrica cerifera</i>		3700	4-10-72-NG							
<i>Myrica cerifera</i>		3714	4-10-72-NG							
<i>Myrica cerifera</i>		3718	4-10-72-NG							
<i>Myrica cerifera</i>		3720	4-10-72-NG							
<i>Myrica cerifera</i>		3723	4-10-72-NG							
<i>Myrica cerifera</i>		3706	4-10-2P-NG							
<i>Myrica cerifera</i>	NC 71-36	3711	4-10-72-NG							
<i>Myrica cerifera</i>	NC 71-42	3722	4-10-72-NG							
<i>Myrica cerifera</i>		368020	3773	4-10-72-NG						
<i>Myrica gale</i>	BN 21969-71	3774	4-10-72-NG							
<i>Myrica gale</i>	NJ 1108 =	3500	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-33	3703	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-34	3704	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-35	3705	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-37	3707	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-38	3708	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-39	3709	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 71-40	3710	4-10-72-NG							
<i>Myrica pensylvanica</i>	NC 86-65	3713	4-10-72-NG							
<i>Myrica pensylvanica</i>	NJ 92-65	3715	4-10-72-NG							
<i>Myrica pensylvanica</i>	NJ 97-65	3716	4-10-72-NG							
<i>Myrica pensylvanica</i>	NJ 105-65	3717	4-10-72-NG							
<i>Myrica pensylvanica</i>	NJ 111-65	3719	4-10-72-NG							
<i>Myrica pensylvanica</i>	NJ 1108-67	3721	4-10-72-NG							
<i>Myrica pumilus</i>	3701	4-10-72-NG								
<i>Myrica pumilus</i>	3702	4-10-72-NG								

Species	PI or Other No.	MS No.	Date Planted	Decid- ious	Ever green	Insect Injury	Winter Injury	Matu- rity	Plant Height	Plant Width
<i>Myrica</i> sp.,										
<i>Pinus ponderosa</i>		3689	4-10-72-NG							
<i>Pinus sylvestris</i>		3169	12-3-69							
<i>Pinus sylvestris</i>		3143	12-3-69							
<i>Pittosporum tobira</i>	343946	3145	12-3-69							
<i>Populus x canadensis</i> Moench	343947	2678	4-71							
<i>Populus x canadensis</i>	NC 67-23	355933	3804	4-72	x					
<i>Populus x canadensis</i>	355934	3805	4-19-72	x						
<i>Populus x canadensis</i>	355935	3806	4-19-72	x						
<i>Populus x canadensis</i>	355936	3807	4-19-72	x						
<i>Populus x canadensis</i>	355937	3808	4-19-72	x						
<i>Populus simoni</i>	KY 725	3210	4-16-71	x						
<i>Potentilla tridentata</i>	BN 11030	3683	9-24-71	x						
<i>Salix lutea</i>	PMT 2391	3603	4-71	x						
<i>Salix</i> sp.	F 5615	3616	5-71	x						
<i>Salix</i> sp.,	F 5618	3619	5-71	x						
<i>Salix</i> sp.,	F 5620	3621	5-71	x						
<i>Salix</i> sp.,	F 5621	3622	5-71	x						
<i>Salix x multineervis</i>	WN 13559-62		898-5-5-66	x						
<i>Thuja orientalis</i>	A.M. 2352	3517	4-16-71	x						
<i>Viburnum japonicum</i>	235518	3596	3-23-71	x						
<i>Viburnum lantana</i>	316679	3219	4-23-70-	x						
<i>Viburnum lantana</i>	316679	3257	7-28-70	x						
<i>Viburnum rufidulum</i>		3291	4-10-72	-NG						
<i>Viburnum sargentii</i>	682	3220	4-23-70	x						
<i>Viburnum sargentii</i>	316681	3259	7-28-70	x						
<i>Viburnum x rhytidophyllumoides</i>	316675	3256	7-28-70	x						
<i>Viburnum</i>	316676	3258	7-28-70	x						

CODE: WINTER AND INSECT INJURY

1: - ... 20%

3: 21 ... 40%

NG--- No Germination

5: 41 ... 60%

7: 61 ... 80%

9: 81 ... 100%

